

CALPUFF Input File
Cleco, Brame Energy Center, Rodemacher II (Enhanced DSI + FF, 0.5)
2001 Baseline, REV C

----- Run title (3 lines) -----

CALPUFF MODEL CONTROL FILE

INPUT GROUP: 0 -- Input and Output File Names

Default Name Type File Name

CALMET.DAT input * METDAT =CMET.DAT *
or
ISCMET.DAT input * ISCDAT = *
or
PLMMET.DAT input * PLMDAT = *
or
PROFILE.DAT input * PRFDAT = *
SURFACE.DAT input * SFCDAT = *
RESTARTB.DAT input * RSTARTB= *

CALPUFF.LST output !PUFLST =CP_RODE_EDSI_01C.LST !
CONC.DAT output !CONDAT =CP_RODE_EDSI_01C.DAT !
DFLX.DAT output !DFDAT =CP_RODE_EDSI_01C.DRY !
WFLX.DAT output !WFDAT =CP_RODE_EDSI_01C.WET !

VISB.DAT output !VISDAT =CP_RODE_EDSI_01C.VIS !
TK2D.DAT output * T2DDAT = *
RHO2D.DAT output * RHODAT = *
RESTARTE.DAT output * RSTARTE= *

Emission Files

PTEMARB.DAT input * PTDAT = *
VOLEMARB.DAT input * VOLDAT = *
BAEMARB.DAT input * ARDAT = *
LNEMARB.DAT input * LNDAT = *

Other Files

OZONE.DAT input !OZDAT =F:\LA Ozone Files (Trinity)\ozonedata01_v2.dat !
VD.DAT input * VDDAT = *
CHEM.DAT input * CHEMDAT= *
H2O2.DAT input * H2O2DAT= *
HILL.DAT input * HILDAT= *
HILLRCT.DAT input * RCTDAT= *
COASTLN.DAT input * CSTDAT= *
FLUXBDY.DAT input * BDYDAT= *
BCON.DAT input * BCNDAT= *
DEBUG.DAT output * DEBUG = *

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MASSFLX.DAT output ! FLXDAT=CP_RODE_EDSI_01C.FLX      !
MASSBAL.DAT output ! BALDAT=CP_RODE_EDSI_01C.BAL      !
FOG.DAT     output * FOGDAT=*
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All file names will be converted to lower case if LCFILES = T
Otherwise, if LCFILES = F, file names will be converted to UPPER CASE
T = lower case ! LCFILES = F !
F = UPPER CASE

NOTE: (1) file/path names can be up to 70 characters in length

Provision for multiple input files

Number of CALMET.DAT files for run (NMETDAT)
Default: 1 ! NMETDAT = 36 !

Number of PTEMARB.DAT files for run (NPTDAT)
Default: 0 ! NPTDAT = 0 !

Number of BAEMARB.DAT files for run (NARDAT)
Default: 0 ! NARDAT = 0 !

Number of VOLEMARB.DAT files for run (NVOLDAT)
Default: 0 ! NVOLDAT = 0 !

!END!

Subgroup (0a)

The following CALMET.DAT filenames are processed in sequence if NMETDAT>1

Default Name	Type	File Name
CALMET1.DAT	input	! METDAT=F:\Refined CENRAP\2001\01met01a.met! !END!
CALMET2.DAT	input	! METDAT=F:\Refined CENRAP\2001\01met01b.met! !END!
CALMET3.DAT	input	! METDAT=F:\Refined CENRAP\2001\01met01c.met! !END!
CALMET4.DAT	input	! METDAT=F:\Refined CENRAP\2001\01met02a.met! !END!
CALMET5.DAT	input	! METDAT=F:\Refined CENRAP\2001\01met02b.met! !END!
CALMET6.DAT	input	! METDAT=F:\Refined CENRAP\2001\01met02c.met! !END!
CALMET7.DAT	input	! METDAT=F:\Refined CENRAP\2001\01met03a.met! !END!
CALMET8.DAT	input	! METDAT=F:\Refined CENRAP\2001\01met03b.met! !END!
CALMET9.DAT	input	! METDAT=F:\Refined CENRAP\2001\01met03c.met! !END!
CALMET10.DAT	input	! METDAT=F:\Refined CENRAP\2001\01met04a.met! !END!
CALMET11.DAT	input	! METDAT=F:\Refined CENRAP\2001\01met04b.met! !END!
CALMET12.DAT	input	! METDAT=F:\Refined CENRAP\2001\01met04c.met! !END!
CALMET13.DAT	input	! METDAT=F:\Refined CENRAP\2001\01met05a.met! !END!
CALMET14.DAT	input	! METDAT=F:\Refined CENRAP\2001\01met05b.met! !END!
CALMET15.DAT	input	! METDAT=F:\Refined CENRAP\2001\01met05c.met! !END!
CALMET16.DAT	input	! METDAT=F:\Refined CENRAP\2001\01met06a.met! !END!
CALMET17.DAT	input	! METDAT=F:\Refined CENRAP\2001\01met06b.met! !END!
CALMET18.DAT	input	! METDAT=F:\Refined CENRAP\2001\01met06c.met! !END!
CALMET19.DAT	input	! METDAT=F:\Refined CENRAP\2001\01met07a.met! !END!
CALMET20.DAT	input	! METDAT=F:\Refined CENRAP\2001\01met07b.met! !END!

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CALMET21.DAT input ! METDAT=F:\Refined CENRAP\2001\01met07c.met! !END!
CALMET22.DAT input ! METDAT=F:\Refined CENRAP\2001\01met08a.met! !END!
CALMET23.DAT input ! METDAT=F:\Refined CENRAP\2001\01met08b.met! !END!
CALMET24.DAT input ! METDAT=F:\Refined CENRAP\2001\01met08c.met! !END!
CALMET25.DAT input ! METDAT=F:\Refined CENRAP\2001\01met09a.met! !END!
CALMET26.DAT input ! METDAT=F:\Refined CENRAP\2001\01met09b.met! !END!
CALMET27.DAT input ! METDAT=F:\Refined CENRAP\2001\01met09c.met! !END!
CALMET28.DAT input ! METDAT=F:\Refined CENRAP\2001\01met10a.met! !END!
CALMET29.DAT input ! METDAT=F:\Refined CENRAP\2001\01met10b.met! !END!
CALMET30.DAT input ! METDAT=F:\Refined CENRAP\2001\01met10c.met! !END!
CALMET31.DAT input ! METDAT=F:\Refined CENRAP\2001\01met11a.met! !END!
CALMET32.DAT input ! METDAT=F:\Refined CENRAP\2001\01met11b.met! !END!
CALMET33.DAT input ! METDAT=F:\Refined CENRAP\2001\01met11c.met! !END!
CALMET34.DAT input ! METDAT=F:\Refined CENRAP\2001\01met12a.met! !END!
CALMET35.DAT input ! METDAT=F:\Refined CENRAP\2001\01met12b.met! !END!
CALMET36.DAT input ! METDAT=F:\Refined CENRAP\2001\01met12c.met! !END!
```

INPUT GROUP: 1 -- General run control parameters

Option to run all periods found
in the met. file (METRUN) Default: 0 ! METRUN = 0 !

METRUN = 0 - Run period explicitly defined below
METRUN = 1 - Run all periods in met. file

Starting date: Year (IBYR) -- No default ! IBYR = 2001 !
(used only if Month (IBMO) -- No default ! IBMO = 1 !
METRUN = 0) Day (IBDY) -- No default ! IBDY = 1 !
Hour (IBHR) -- No default ! IBHR = 0 !

Note: IBHR is the time at the END of the first hour of the simulation
(IBHR=1, the first hour of a day, runs from 00:00 to 01:00)

Base time zone (XBTZ) -- No default ! XBTZ = 6 !
The zone is the number of hours that must be
ADDED to the time to obtain UTC (or GMT)

Examples: PST = 8., MST = 7.
CST = 6., EST = 5.

Length of run (hours) (IRLG) -- No default ! IRLG = 8752 !

Number of chemical species (NSPEC)
Default: 5 ! NSPEC = 9 !

Number of chemical species
to be emitted (NSE) Default: 3 ! NSE = 7 !

Flag to stop run after
SETUP phase (ITEST) Default: 2 ! ITEST = 2 !
(Used to allow checking
of the model inputs, files, etc.)

ITEST = 1 - STOPS program after SETUP phase
ITEST = 2 - Continues with execution of program
after SETUP

Restart Configuration:

Control flag (MRESTART) Default: 0 ! MRESTART = 0 !

0 = Do not read or write a restart file
1 = Read a restart file at the beginning of
the run
2 = Write a restart file during run
3 = Read a restart file at beginning of run
and write a restart file during run

Number of periods in Restart
output cycle (NRESPD) Default: 0 ! NRESPD = 0 !

0 = File written only at last period
>0 = File updated every NRESPD periods

Meteorological Data Format (METFM)
Default: 1 ! METFM = 1 !

METFM = 1 - CALMET binary file (CALMET.MET)
METFM = 2 - ISC ASCII file (ISCMET.MET)
METFM = 3 - AUSPLUME ASCII file (PLMMET.MET)
METFM = 4 - CTDM plus tower file (PROFILE.DAT) and
surface parameters file (SURFACE.DAT)
METFM = 5 - AERMET tower file (PROFILE.DAT) and
surface parameters file (SURFACE.DAT)

Meteorological Profile Data Format (MPRFFM)
(used only for METFM = 1, 2, 3)
Default: 1 ! MPRFFM = 1 !

MPRFFM = 1 - CTDM plus tower file (PROFILE.DAT)
MPRFFM = 2 - AERMET tower file (PROFILE.DAT)

PG sigma-y is adjusted by the factor (AVET/PGTIME)**0.2
Averaging Time (minutes) (AVET)
Default: 60.0 ! AVET = 60. !
PG Averaging Time (minutes) (PGTIME)
Default: 60.0 ! PGTIME = 60. !

!END!

INPUT GROUP: 2 -- Technical options

Vertical distribution used in the

near field (MGAUSS) Default: 1 ! MGAUSS = 1 !

0 = uniform

1 = Gaussian

Terrain adjustment method

(MCTADJ) Default: 3 ! MCTADJ = 3 !

0 = no adjustment

1 = ISC-type of terrain adjustment

2 = simple, CALPUFF-type of terrain
adjustment

3 = partial plume path adjustment

Subgrid-scale complex terrain

flag (MCTSG) Default: 0 ! MCTSG = 0 !

0 = not modeled

1 = modeled

Near-field puffs modeled as

elongated slugs? (MSLUG) Default: 0 ! MSLUG = 0 !

0 = no

1 = yes (slug model used)

Transitional plume rise modeled?

(MTRANS) Default: 1 ! MTRANS = 1 !

0 = no (i.e., final rise only)

1 = yes (i.e., transitional rise computed)

Stack tip downwash? (MTIP) Default: 1 ! MTIP = 1 !

0 = no (i.e., no stack tip downwash)

1 = yes (i.e., use stack tip downwash)

Method used to simulate building

downwash? (MBDW) Default: 1 ! MBDW = 1 !

1 = ISC method

2 = PRIME method

Vertical wind shear modeled above

stack top? (MSHEAR) Default: 0 ! MSHEAR = 0 !

0 = no (i.e., vertical wind shear not modeled)

1 = yes (i.e., vertical wind shear modeled)

Puff splitting allowed? (MSPLIT) Default: 0 ! MSPLIT = 0 !

0 = no (i.e., puffs not split)

1 = yes (i.e., puffs are split)

Chemical mechanism flag (MCHEM) Default: 1 ! MCHEM = 1 !

0 = chemical transformation not
modeled

1 = transformation rates computed
internally (MESOPUFF II scheme)

2 = user-specified transformation
rates used

3 = transformation rates computed
internally (RIVAD/ARM3 scheme)

4 = secondary organic aerosol formation
computed (MESOPUFF II scheme for OH)

Aqueous phase transformation flag (MAQCHEM)
(Used only if MCHEM = 1, or 3) Default: 0 ! MAQCHEM = 0 !
0 = aqueous phase transformation
not modeled
1 = transformation rates adjusted
for aqueous phase reactions

Wet removal modeled ? (MWET) Default: 1 ! MWET = 1 !
0 = no
1 = yes

Dry deposition modeled ? (MDRY) Default: 1 ! MDRY = 1 !
0 = no
1 = yes
(dry deposition method specified
for each species in Input Group 3)

Gravitational settling (plume tilt)
modeled ? (MTILT) Default: 0 ! MTILT = 0 !
0 = no
1 = yes
(puff center falls at the gravitational
settling velocity for 1 particle species)

Restrictions:
- MDRY = 1
- NSPEC = 1 (must be particle species as well)
- sg = 0 GEOMETRIC STANDARD DEVIATION in Group 8 is
set to zero for a single particle diameter

Method used to compute dispersion
coefficients (MDISP) Default: 3 ! MDISP = 3 !
1 = dispersion coefficients computed from measured values
of turbulence, sigma v, sigma w
2 = dispersion coefficients from internally calculated
sigma v, sigma w using micrometeorological variables
(u*, w*, L, etc.)
3 = PG dispersion coefficients for RURAL areas (computed using
the ISCST multi-segment approximation) and MP coefficients in
urban areas
4 = same as 3 except PG coefficients computed using
the MESOPUFF II eqns.
5 = CTDM sigmas used for stable and neutral conditions.
For unstable conditions, sigmas are computed as in
MDISP = 3, described above. MDISP = 5 assumes that
measured values are read

Sigma-v/sigma-theta, sigma-w measurements used? (MTURBVW)
(Used only if MDISP = 1 or 5) Default: 3 ! MTURBVW = 3 !
1 = use sigma-v or sigma-theta measurements
from PROFILE.DAT to compute sigma-y
(valid for METFM = 1, 2, 3, 4, 5)
2 = use sigma-w measurements

from PROFILE.DAT to compute sigma-z
(valid for METFM = 1, 2, 3, 4, 5)
3 = use both sigma-(v/theta) and sigma-w
from PROFILE.DAT to compute sigma-y and sigma-z
(valid for METFM = 1, 2, 3, 4, 5)
4 = use sigma-theta measurements
from PLMMET.DAT to compute sigma-y
(valid only if METFM = 3)

Back-up method used to compute dispersion
when measured turbulence data are
missing (MDISP2) Default: 3 ! MDISP2 = 3 !
(used only if MDISP = 1 or 5)

2 = dispersion coefficients from internally calculated
sigma v, sigma w using micrometeorological variables
(u*, w*, L, etc.)
3 = PG dispersion coefficients for RURAL areas (computed using
the ISCST multi-segment approximation) and MP coefficients in
urban areas
4 = same as 3 except PG coefficients computed using
the MESOPUFF II eqns.

[DIAGNOSTIC FEATURE]

Method used for Lagrangian timescale for Sigma-y
(used only if MDISP=1,2 or MDISP2=1,2)
(MTAULY) Default: 0 ! MTAULY = 0 !
0 = Draxler default 617.284 (s)
1 = Computed as Lag. Length / (.75 q) -- after SCIPUFF
10 < Direct user input (s) -- e.g., 306.9

[DIAGNOSTIC FEATURE]

Method used for Advective-Decay timescale for Turbulence
(used only if MDISP=2 or MDISP2=2)
(MTAUADV) Default: 0 ! MTAUADV = 0 !
0 = No turbulence advection
1 = Computed (OPTION NOT IMPLEMENTED)
10 < Direct user input (s) -- e.g., 300

Method used to compute turbulence sigma-v &
sigma-w using micrometeorological variables
(Used only if MDISP = 2 or MDISP2 = 2)
(MCTURB) Default: 1 ! MCTURB = 1 !
1 = Standard CALPUFF subroutines
2 = AERMOD subroutines

PG sigma-y,z adj. for roughness? Default: 0 ! MROUGH = 0 !
(MROUGH)
0 = no
1 = yes

Partial plume penetration of
elevated inversion? Default: 1 ! MPARTL = 1 !
(MPARTL)
0 = no

1 = yes

Strength of temperature inversion Default: 0 ! MTINV = 0 !
provided in PROFILE.DAT extended records?
(MTINV)

0 = no (computed from measured/default gradients)

1 = yes

PDF used for dispersion under convective conditions?
Default: 0 ! MPDF = 0 !

(MPDF)

0 = no

1 = yes

Sub-Grid TIBL module used for shore line?
Default: 0 ! MSGTIBL = 0 !

(MSGTIBL)

0 = no

1 = yes

Boundary conditions (concentration) modeled?
Default: 0 ! MBCON = 0 !

(MBCON)

0 = no

1 = yes, using formatted BCON.DAT file

2 = yes, using unformatted CONC.DAT file

Note: MBCON > 0 requires that the last species modeled
be 'BCON'. Mass is placed in species BCON when
generating boundary condition puffs so that clean
air entering the modeling domain can be simulated
in the same way as polluted air. Specify zero
emission of species BCON for all regular sources.

Individual source contributions saved?
Default: 0 ! MSOURCE = 0 !

(MSOURCE)

0 = no

1 = yes

Analyses of fogging and icing impacts due to emissions from
arrays of mechanically-forced cooling towers can be performed
using CALPUFF in conjunction with a cooling tower emissions
processor (CTEMISS) and its associated postprocessors. Hourly
emissions of water vapor and temperature from each cooling tower
cell are computed for the current cell configuration and ambient
conditions by CTEMIS. CALPUFF models the dispersion of these
emissions and provides cloud information in a specialized format
for further analysis. Output to FOG.DAT is provided in either
'plume mode' or 'receptor mode' format.

Configure for FOG Model output?
Default: 0 ! MFOG = 0 !

(MFOG)

0 = no

1 = yes - report results in PLUME Mode format
2 = yes - report results in RECEPTOR Mode format

Test options specified to see if
they conform to regulatory
values? (MREG) Default: 1 ! MREG = 1 !

0 = NO checks are made
1 = Technical options must conform to USEPA
 Long Range Transport (LRT) guidance
 METFM 1 or 2
 AVET 60. (min)
 PGTIME 60. (min)
 MGAUSS 1
 MCTADJ 3
 MTRANS 1
 MTIP 1
 MCHEM 1 or 3 (if modeling SOx, NOx)
 MWET 1
 MDRY 1
 MDISP 2 or 3
 MPDF 0 if MDISP=3
 1 if MDISP=2
 MROUGH 0
 MPARTL 1
 SYTDEP 550. (m)
 MHFTSZ 0
 SVMIN 0.5 (m/s)

!END!

INPUT GROUP: 3a, 3b -- Species list

Subgroup (3a)

The following species are modeled:

! CSPEC = SO2 ! !END!
! CSPEC = SO4 ! !END!
! CSPEC = NOX ! !END!
! CSPEC = HNO3 ! !END!
! CSPEC = NO3 ! !END!
! CSPEC = PMC ! !END!
! CSPEC = PMF ! !END!
! CSPEC = EC ! !END!
! CSPEC = SOA ! !END!

Dry OUTPUT GROUP

SPECIES NAME	MODELED (0=NO, 1=YES)	EMITTED (0=NO, 1=YES)	DEPOSITED (0=NO, 1=COMPUTED-GAS 2=COMPUTED-PARTICLE 3=USER-SPECIFIED)	NUMBER (0=NONE, 1=1st CGRUP, 2=2nd CGRUP, 3= etc.)
(Limit: 12 Characters in length)				

```
!
!    SO2 =    1,      1,      1,      0 !
!
!    SO4 =    1,      1,      2,      0 !
!
!    NOX =    1,      1,      1,      0 !
!
!    HNO3 =   1,      0,      1,      0 !
!
!    NO3 =    1,      0,      2,      0 !
!
!    PMC =    1,      1,      2,      0 !
!
!    PMF =    1,      1,      2,      0 !
!
!    EC =     1,      1,      2,      0 !
!
!    SOA =    1,      1,      2,      0 !
```

!END!

Note: The last species in (3a) must be 'BCON' when using the boundary condition option ($MBCON > 0$). Species BCON should typically be modeled as inert (no chem transformation or removal).

Subgroup (3b)

The following names are used for Species-Groups in which results for certain species are combined (added) prior to output. The CGRUP name will be used as the species name in output files. Use this feature to model specific particle-size distributions by treating each size-range as a separate species. Order must be consistent with 3(a) above.

INPUT GROUP: 4 -- Map Projection and Grid control parameters

Projection for all (X,Y):

Map projection
(PMAP) Default: UTM ! PMAP = LCC !

UTM : Universal Transverse Mercator
 TTM : Tangential Transverse Mercator
 LCC : Lambert Conformal Conic
 PS : Polar Stereographic
 EM : Equatorial Mercator
 LAZA : Lambert Azimuthal Equal Area

False Easting and Northing (km) at the projection origin

(Used only if PMAP= TTM, LCC, or LAZA)
(FEAST) Default=0.0 ! FEAST = 0.000 !
(FNORTH) Default=0.0 ! FNORTH = 0.000 !

UTM zone (1 to 60)
(Used only if PMAP=UTM)
(IUTMZN) No Default ! IUTMZN = -999 !

Hemisphere for UTM projection?
(Used only if PMAP=UTM)
(UTMHEM) Default: N ! UTMHEM = N !
N : Northern hemisphere projection
S : Southern hemisphere projection

Latitude and Longitude (decimal degrees) of projection origin
(Used only if PMAP= TTM, LCC, PS, EM, or LAZA)
(RLAT0) No Default ! RLAT0 = 40N !
(RLON0) No Default ! RLON0 = 97W !

TTM : RLON0 identifies central (true N/S) meridian of projection
RLAT0 selected for convenience
LCC : RLON0 identifies central (true N/S) meridian of projection
RLAT0 selected for convenience
PS : RLON0 identifies central (grid N/S) meridian of projection
RLAT0 selected for convenience
EM : RLON0 identifies central meridian of projection
RLAT0 is REPLACED by 0.0N (Equator)
LAZA: RLON0 identifies longitude of tangent-point of mapping plane
RLAT0 identifies latitude of tangent-point of mapping plane

Matching parallel(s) of latitude (decimal degrees) for projection
(Used only if PMAP= LCC or PS)
(XLAT1) No Default ! XLAT1 = 33N !
(XLAT2) No Default ! XLAT2 = 45N !

LCC : Projection cone slices through Earth's surface at XLAT1 and XLAT2
PS : Projection plane slices through Earth at XLAT1
(XLAT2 is not used)

Note: Latitudes and longitudes should be positive, and include a letter N,S,E, or W indicating north or south latitude, and east or west longitude. For example,
35.9 N Latitude = 35.9N
118.7 E Longitude = 118.7E

Datum-region

The Datum-Region for the coordinates is identified by a character string. Many mapping products currently available use the model of the Earth known as the World Geodetic System 1984 (WGS-84). Other local models may be in use, and their selection in CALMET will make its output consistent with local mapping products. The list of Datum-Regions with official transformation parameters is provided by the National Imagery and

Mapping Agency (NIMA).

NIMA Datum - Regions(Examples)

WGS-84 WGS-84 Reference Ellipsoid and Geoid, Global coverage (WGS84)
NAS-C NORTH AMERICAN 1927 Clarke 1866 Spheroid, MEAN FOR CONUS (NAD27)
NAR-C NORTH AMERICAN 1983 GRS 80 Spheroid, MEAN FOR CONUS (NAD83)
NWS-84 NWS 6370KM Radius, Sphere
ESR-S ESRI REFERENCE 6371KM Radius, Sphere

Datum-region for output coordinates
(DATUM) Default: WGS-84 ! DATUM = WGS-G !

METEOROLOGICAL Grid:

Rectangular grid defined for projection PMAP,
with X the Easting and Y the Northing coordinate

No. X grid cells (NX) No default ! NX = 462 !
No. Y grid cells (NY) No default ! NY = 376 !
No. vertical layers (NZ) No default ! NZ = 12 !

Grid spacing (DGRIDKM) No default ! DGRIDKM = 4.0 !
Units: km

Cell face heights
(ZFACE(nz+1)) No defaults
Units: m

! ZFACE = 0.,20.,40.,60.,80.,100.,150.,200.,250.,500.,1000.,2000.,3500. !

Reference Coordinates
of SOUTHWEST corner of
grid cell(1, 1):

X coordinate (XORIGKM) No default ! XORIGKM = -951.547 !
Y coordinate (YORIGKM) No default ! YORIGKM = -1646.637 !
Units: km

COMPUTATIONAL Grid:

The computational grid is identical to or a subset of the MET. grid.
The lower left (LL) corner of the computational grid is at grid point
(IBCOMP, JBCOMP) of the MET. grid. The upper right (UR) corner of the
computational grid is at grid point (IECOMP, JECOMP) of the MET. grid.
The grid spacing of the computational grid is the same as the MET. grid.

X index of LL corner (IBCOMP) No default ! IBCOMP = 288 !
(1 <= IBCOMP <= NX)

Y index of LL corner (JBCOMP) No default ! JBCOMP = 117 !
(1 <= JBCOMP <= NY)

X index of UR corner (IECOMP) No default ! IECOMP = 451 !

(1 <= IECOMP <= NX)

Y index of UR corner (JECOMP) No default ! JECOMP = 274 !
(1 <= JECOMP <= NY)

SAMPLING Grid (GRIDDED RECEPTORS):

The lower left (LL) corner of the sampling grid is at grid point (IBSAMP, JBSAMP) of the MET. grid. The upper right (UR) corner of the sampling grid is at grid point (IESAMP, JESAMP) of the MET. grid.
The sampling grid must be identical to or a subset of the computational grid. It may be a nested grid inside the computational grid.
The grid spacing of the sampling grid is DGRIDKM/MESHDN.

Logical flag indicating if gridded receptors are used (LSAMP) Default: T ! LSAMP = F !
(T=yes, F=no)

X index of LL corner (IBSAMP) No default ! IBSAMP = 1 !
(IBCOMP <= IBSAMP <= IECOMP)

Y index of LL corner (JBSAMP) No default ! JBSAMP = 1 !
(JBCOMP <= JBSAMP <= JECOMP)

X index of UR corner (IESAMP) No default ! IESAMP = 462 !
(IBCOMP <= IESAMP <= IECOMP)

Y index of UR corner (JESAMP) No default ! JESAMP = 376 !
(JBCOMP <= JESAMP <= JECOMP)

Nesting factor of the sampling grid (MESHDN) Default: 1 ! MESHDN = 1 !
(MESHDN is an integer >= 1)

!END!

INPUT GROUP: 5 -- Output Options

FILE	DEFAULT VALUE	VALUE THIS RUN
Concentrations (ICON)	1	! ICON = 1 !
Dry Fluxes (IDRY)	1	! IDRY = 1 !
Wet Fluxes (IWET)	1	! IWET = 1 !
2D Temperature (IT2D)	0	! IT2D = 0 !
2D Density (IRHO)	0	! IRHO = 0 !
Relative Humidity (IVIS)	1	! IVIS = 1 !

(relative humidity file is
required for visibility
analysis)

Use data compression option in output file?
(LCOMPRS) Default: T ! LCOMPRS = T !

*

0 = Do not create file, 1 = create file

QA PLOT FILE OUTPUT OPTION:

Create a standard series of output files (e.g.
locations of sources, receptors, grids ...)
suitable for plotting?

(IQAPLOT) Default: 1 ! IQAPLOT = 1 !
0 = no
1 = yes

DIAGNOSTIC MASS FLUX OUTPUT OPTIONS:

Mass flux across specified boundaries
for selected species reported?

(IMFLX) Default: 0 ! IMFLX = 0 !
0 = no
1 = yes (FLUXBDY.DAT and MASSFLX.DAT filenames
are specified in Input Group 0)

Mass balance for each species
reported?

(IMBAL) Default: 0 ! IMBAL = 0 !
0 = no
1 = yes (MASSBAL.DAT filename is
specified in Input Group 0)

LINE PRINTER OUTPUT OPTIONS:

Print concentrations (ICPRT) Default: 0 ! ICPRT = 0 !
Print dry fluxes (IDPRT) Default: 0 ! IDPRT = 0 !
Print wet fluxes (IWPRT) Default: 0 ! IWPRT = 0 !
(0 = Do not print, 1 = Print)

Concentration print interval

(ICFRQ) in timesteps Default: 1 ! ICFRQ = 1 !

Dry flux print interval

(IDFRQ) in timesteps Default: 1 ! IDFRQ = 1 !

Wet flux print interval

(IWFRQ) in timesteps Default: 1 ! IWFRQ = 1 !

Units for Line Printer Output

(IPRTU) Default: 1 ! IPRTU = 3 !

for for

Concentration Deposition

1 = g/m**3 g/m**2/s

2 = mg/m**3 mg/m**2/s

3 = ug/m**3 ug/m**2/s
 4 = ng/m**3 ng/m**2/s
 5 = Odour Units

Messages tracking progress of run
written to the screen ?

(IMESG) Default: 2 ! IMESG = 2 !
 0 = no
 1 = yes (advection step, puff ID)
 2 = yes (YYYYJJHH, # old puffs, # emitted puffs)

SPECIES (or GROUP for combined species) LIST FOR OUTPUT OPTIONS

	--- CONCENTRATIONS ---		----- DRY FLUXES -----		----- WET FLUXES -----		-- MASS
FLUX --							
SPECIES	/GROUP	PRINTED?	SAVED ON DISK?	PRINTED?	SAVED ON DISK?	PRINTED?	SAVED ON DISK?
!	SO2 =	0,	1,	0,	1,	0,	1 !
!	SO4 =	0,	1,	0,	1,	0,	1 !
!	NOX =	0,	1,	0,	1,	0,	1 !
!	HNO3 =	0,	1,	0,	1,	0,	1 !
!	NO3 =	0,	1,	0,	1,	0,	1 !
!	PMC =	0,	1,	0,	1,	0,	1 !
!	PMF =	0,	1,	0,	1,	0,	1 !
!	EC =	0,	1,	0,	1,	0,	1 !
!	SOA =	0,	1,	0,	1,	0,	1 !

Note: Species BCON (for MBCON > 0) does not need to be saved on disk.

OPTIONS FOR PRINTING "DEBUG" QUANTITIES (much output)

Logical for debug output
(LDEBUG) Default: F ! LDEBUG = F !

First puff to track
(IPFDEB) Default: 1 ! IPFDEB = 1 !

Number of puffs to track
(NPFDEB) Default: 1 ! NPFDEB = 1 !

Met. period to start output
(NN1) Default: 1 ! NN1 = 1 !

Met. period to end output
(NN2) Default: 10 ! NN2 = 10 !

!END!

INPUT GROUP: 6a, 6b, & 6c -- Subgrid scale complex terrain inputs

Subgroup (6a)

Number of terrain features (NHILL) Default: 0 ! NHILL = 0 !

Number of special complex terrain receptors (NCTREC) Default: 0 ! NCTREC = 0 !

Terrain and CTSG Receptor data for
CTSG hills input in CTDM format ?

(MHILL) No Default ! MHILL = 2 !

1 = Hill and Receptor data created
by CTDM processors & read from
HILL.DAT and HILLRCT.DAT files

2 = Hill data created by OPTHILL &
input below in Subgroup (6b);
Receptor data in Subgroup (6c)

Factor to convert horizontal dimensions Default: 1.0 ! XHILL2M = 1.0 !
to meters (MHILL=1)

Factor to convert vertical dimensions Default: 1.0 ! ZHILL2M = 1.0 !
to meters (MHILL=1)

X-origin of CTDM system relative to No Default ! XCTDMKM = 0 !
CALPUFF coordinate system, in Kilometers (MHILL=1)

Y-origin of CTDM system relative to No Default ! YCTDMKM = 0 !
CALPUFF coordinate system, in Kilometers (MHILL=1)

! END !

Subgroup (6b)

1 **
HILL information

HILL AMAX1	XC AMAX2 NO.	YC (km)	THETAH (deg.)	ZGRID (m)	RELIEF (m)	EXPO 1 (m)	EXPO 2 (m)	SCALE 1 (m)	SCALE 2 (m)
---	---	---	---	---	---	---	---	---	---

Subgroup (6c)

COMPLEX TERRAIN RECEPTOR INFORMATION

XRCT (km)	YRCT (km)	ZRCT (m)	XHH
--------------	--------------	-------------	-----

1

Description of Complex Terrain Variables:

XC, YC = Coordinates of center of hill

THETAH = Orientation of major axis of hill (clockwise from
North)

ZGRID = Height of the 0 of the grid above mean sea
level

RELIEF = Height of the crest of the hill above the grid elevation

EXPO 1 = Hill-shape exponent for the major axis

EXPO 2 = Hill-shape exponent for the major axis

SCALE 1 = Horizontal length scale along the major axis

SCALE 2 = Horizontal length scale along the minor axis

AMAX = Maximum allowed axis length for the major axis

BMAX = Maximum allowed axis length for the major axis

XRCT, YRCT = Coordinates of the complex terrain receptors

ZRCT = Height of the ground (MSL) at the complex terrain
Receptor

XHH = Hill number associated with each complex terrain receptor

(NOTE: MUST BE ENTERED AS A REAL NUMBER)

**

NOTE: DATA for each hill and CTSG receptor are treated as a separate
input subgroup and therefore must end with an input group terminator.

INPUT GROUP: 7 -- Chemical parameters for dry deposition of gases

SPECIES HENRY'S LAW COEFFICIENT	DIFFUSIVITY NAME	ALPHA STAR (cm**2/s)	REACTIVITY (s/cm)	MESOPHYLL RESISTANCE (dimensionless)
! SO2 = .1509,	1000.0,	8.0,	.0,	.04 !
! NOX = .1656,	1.0,	8.0,	5.0,	3.5 !
! HNO3 = .1628,	1.0,	18.0,	.0,	.00000008 !

!END!

INPUT GROUP: 8 -- Size parameters for dry deposition of particles

For SINGLE SPECIES, the mean and standard deviation are used to
compute a deposition velocity for NINT (see group 9) size-ranges,
and these are then averaged to obtain a mean deposition velocity.

For GROUPED SPECIES, the size distribution should be explicitly specified (by the 'species' in the group), and the standard deviation for each should be entered as 0. The model will then use the deposition velocity for the stated mean diameter.

SPECIES NAME	GEOMETRIC MASS MEAN DIAMETER (microns)	GEOMETRIC STANDARD DEVIATION (microns)
! SO4 =	.48,	2.0 !
! NO3 =	.48,	2.0 !
! PMC =	.48,	2.0 !
! PMF =	.48,	2.0 !
! EC =	.48,	2.0 !
! SOA =	.48,	2.0 !

!END!

INPUT GROUP: 9 -- Miscellaneous dry deposition parameters

Reference cuticle resistance (s/cm)
(RCUTR) Default: 30 ! RCUTR = 30.0 !
Reference ground resistance (s/cm)
(RGR) Default: 10 ! RGR = 10.0 !
Reference pollutant reactivity
(REACTR) Default: 8 ! REACTR = 8.0 !

Number of particle-size intervals used to
evaluate effective particle deposition velocity
(NINT) Default: 9 ! NINT = 9 !

Vegetation state in unirrigated areas
(IVEG) Default: 1 ! IVEG = 1 !
IVEG=1 for active and unstressed vegetation
IVEG=2 for active and stressed vegetation
IVEG=3 for inactive vegetation

!END!

INPUT GROUP: 10 -- Wet Deposition Parameters

Scavenging Coefficient -- Units: (sec)**(-1)

Pollutant Liquid Precip. Frozen Precip.

```
-----  
! SO2 = 3.0E-05, 0.0E00 !  
! SO4 = 1.0E-04, 3.0E-05 !  
! HNO3 = 6.0E-05, 0.0E00 !  
! NO3 = 1.0E-04, 3.0E-05 !  
! PMC = 1.0E-04, 3.0E-05 !  
! PMF = 1.0E-04, 3.0E-05 !  
! EC = 1.0E-04, 3.0E-05 !  
! SOA = 1.0E-04, 3.0E-05 !
```

!END!

INPUT GROUP: 11 -- Chemistry Parameters

Ozone data input option (MOZ) Default: 1 ! MOZ = 1 !
(Used only if MCHEM = 1, 3, or 4)

0 = use a monthly background ozone value
1 = read hourly ozone concentrations from
the OZONE.DAT data file

Monthly ozone concentrations

(Used only if MCHEM = 1, 3, or 4 and
MOZ = 0 or MOZ = 1 and all hourly O3 data missing)
(BCKO3) in ppb Default: 12*80.

! BCKO3 = 80.00, 80.00, 80.00, 80.00, 80.00, 80.00, 80.00, 80.00, 80.00, 80.00, 80.00, 80.00 !

Monthly ammonia concentrations

(Used only if MCHEM = 1, or 3)
(BCKNH3) in ppb Default: 12*10.
! BCKNH3 = 3.00, 3.00, 3.00, 3.00, 3.00, 3.00, 3.00, 3.00, 3.00, 3.00, 3.00 !

Nighttime SO2 loss rate (RNITE1)
in percent/hour Default: 0.2 ! RNITE1 = .2 !

Nighttime NOx loss rate (RNITE2)
in percent/hour Default: 2.0 ! RNITE2 = 2.0 !

Nighttime HNO3 formation rate (RNITE3)
in percent/hour Default: 2.0 ! RNITE3 = 2.0 !

H2O2 data input option (MH2O2) Default: 1 ! MH2O2 = 1 !
(Used only if MAQCHEM = 1)
0 = use a monthly background H2O2 value
1 = read hourly H2O2 concentrations from
the H2O2.DAT data file

Monthly H2O2 concentrations
(Used only if MQACHEM = 1 and
MH2O2 = 0 or MH2O2 = 1 and all hourly H2O2 data missing)
(BCKH2O2) in ppb Default: 12*1.
! BCKH2O2 = 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00 !

-- Data for SECONDARY ORGANIC AEROSOL (SOA) Option
(used only if MCHEM = 4)

The SOA module uses monthly values of:

Fine particulate concentration in ug/m^3 (BCKPMF)
Organic fraction of fine particulate (OFRAC)
VOC / NOX ratio (after reaction) (VCNX)
to characterize the air mass when computing
the formation of SOA from VOC emissions.

Typical values for several distinct air mass types are:

Month	1	2	3	4	5	6	7	8	9	10	11	12
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Clean Continental

BCKPMF	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
OFRAC	.15	.15	.20	.20	.20	.20	.20	.20	.20	.20	.20	.15
VCNX	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.

Clean Marine (surface)

BCKPMF	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5
OFRAC	.25	.25	.30	.30	.30	.30	.30	.30	.30	.30	.30	.25
VCNX	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.

Urban - low biogenic (controls present)

BCKPMF	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
OFRAC	.20	.20	.25	.25	.25	.25	.25	.20	.20	.20	.20	.20
VCNX	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.

Urban - high biogenic (controls present)

BCKPMF	60.	60.	60.	60.	60.	60.	60.	60.	60.	60.	60.	60.
OFRAC	.25	.25	.30	.30	.30	.55	.55	.35	.35	.35	.25	.25
VCNX	15.	15.	15.	15.	15.	15.	15.	15.	15.	15.	15.	15.

Regional Plume

BCKPMF	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.
OFRAC	.20	.20	.25	.35	.25	.40	.40	.40	.30	.30	.20	.20
VCNX	15.	15.	15.	15.	15.	15.	15.	15.	15.	15.	15.	15.

Urban - no controls present

BCKPMF	100.	100.	100.	100.	100.	100.	100.	100.	100.	100.	100.	100.
OFRAC	.30	.30	.35	.35	.35	.55	.55	.55	.35	.35	.30	.30
VCNX	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.

Default: Clean Continental

! BCKPMF = 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00 !
! OFRAC = 0.15, 0.15, 0.20, 0.20, 0.20, 0.20, 0.20, 0.20, 0.20, 0.20, 0.20, 0.15 !
! VCNX = 50.00, 50.00, 50.00, 50.00, 50.00, 50.00, 50.00, 50.00, 50.00, 50.00, 50.00, 50.00 !

!END!

INPUT GROUP: 12 -- Misc. Dispersion and Computational Parameters

Horizontal size of puff (m) beyond which
time-dependent dispersion equations (Heffter)
are used to determine sigma-y and
sigma-z (SYTDEP) Default: 550. ! SYTDEP = 5.5E02 !

Switch for using Heffter equation for sigma z
as above (0 = Not use Heffter; 1 = use Heffter
(MHFTSZ) Default: 0 ! MHFTSZ = 0 !

Stability class used to determine plume
growth rates for puffs above the boundary
layer (JSUP) Default: 5 ! JSUP = 5 !

Vertical dispersion constant for stable
conditions (k1 in Eqn. 2.7-3) (CONK1) Default: 0.01 ! CONK1 = .01 !

Vertical dispersion constant for neutral/
unstable conditions (k2 in Eqn. 2.7-4)
(CONK2) Default: 0.1 ! CONK2 = .1 !

Factor for determining Transition-point from
Schulman-Scire to Huber-Snyder Building Downwash
scheme (SS used for Hs < Hb + TBD * HL)
(TBD) Default: 0.5 ! TBD = .5 !
TBD < 0 ==> always use Huber-Snyder
TBD = 1.5 ==> always use Schulman-Scire
TBD = 0.5 ==> ISC Transition-point

Range of land use categories for which
urban dispersion is assumed
(IURB1, IURB2) Default: 10 ! IURB1 = 10 !
19 ! IURB2 = 19 !

Site characterization parameters for single-point Met data files -----
(needed for METFM = 2,3,4,5)

Land use category for modeling domain
(ILANDUIN) Default: 20 ! ILANDUIN = 20 !

Roughness length (m) for modeling domain
(Z0IN) Default: 0.25 ! Z0IN = .25 !

Leaf area index for modeling domain
(XLAIIN) Default: 3.0 ! XLAIIN = 3.0 !

Elevation above sea level (m)
(ELEVIN) Default: 0.0 ! ELEVIN = .0 !

Latitude (degrees) for met location
(XLATIN) Default: -999. ! XLATIN = -999.0 !

Longitude (degrees) for met location
(XLONIN) Default: -999. ! XLONIN = -999.0 !

Specialized information for interpreting single-point Met data files -----

Anemometer height (m) (Used only if METFM = 2,3)
(ANEMHT) Default: 10. ! ANEMHT = 10.0 !

Form of lateral turbulence data in PROFILE.DAT file
(Used only if METFM = 4,5 or MTURBVW = 1 or 3)
(ISIGMAV) Default: 1 ! ISIGMAV = 1 !
0 = read sigma-theta
1 = read sigma-v

Choice of mixing heights (Used only if METFM = 4)
(IMIXCTDM) Default: 0 ! IMIXCTDM = 0 !
0 = read PREDICTED mixing heights
1 = read OBSERVED mixing heights

Maximum length of a slug (met. grid units)
(XMXLEN) Default: 1.0 ! XMXLEN = 1.0 !

Maximum travel distance of a puff/slug (in
grid units) during one sampling step
(XSAMLEN) Default: 1.0 ! XSAMLEN = 10.0 !

Maximum Number of slugs/puffs release from
one source during one time step
(MXNEW) Default: 99 ! MXNEW = 60 !

Maximum Number of sampling steps for
one puff/slug during one time step
(MXSAM) Default: 99 ! MXSAM = 60 !

Number of iterations used when computing
the transport wind for a sampling step
that includes gradual rise (for CALMET
and PROFILE winds)
(NCOUNT) Default: 2 ! NCOUNT = 2 !

Minimum sigma y for a new puff/slug (m)
(SYMIN) Default: 1.0 ! SYMIN = 1.0 !

Minimum sigma z for a new puff/slug (m)
(SZMIN) Default: 1.0 ! SZMIN = 1.0 !

Default minimum turbulence velocities sigma-v and sigma-w
for each stability class over land and over water (m/s)
(SVMIN(12) and SWMIN(12))

----- LAND -----						----- WATER -----						
Stab Class :	A	B	C	D	E	F	A	B	C	D	E	F
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

Default SVMIN : .50, .50, .50, .50, .50, .50, .37, .37, .37, .37, .37, .37
Default SWMIN : .20, .12, .08, .06, .03, .016, .20, .12, .08, .06, .03, .016

! SVMIN = 0.500, 0.500, 0.500, 0.500, 0.500, 0.500, 0.500, 0.500, 0.500, 0.500, 0.500, 0.500!
! SWMIN = 0.200, 0.120, 0.080, 0.060, 0.030, 0.016, 0.200, 0.120, 0.080, 0.060, 0.030, 0.016!

Divergence criterion for dw/dz across puff
used to initiate adjustment for horizontal
convergence (1/s)
Partial adjustment starts at CDIV(1), and
full adjustment is reached at CDIV(2)
(CDIV(2)) Default: 0.0,0.0 ! CDIV = .0, .0 !

Minimum wind speed (m/s) allowed for
non-calm conditions. Also used as minimum
speed returned when using power-law
extrapolation toward surface
(WSCALM) Default: 0.5 ! WSCALM = .5 !

Maximum mixing height (m)
(XMAXZI) Default: 3000. ! XMAXZI = 3000.0 !

Minimum mixing height (m)
(XMINZI) Default: 50. ! XMINZI = 20.0 !

Default wind speed classes --
5 upper bounds (m/s) are entered;
the 6th class has no upper limit
(WSCAT(5)) Default :
ISC RURAL : 1.54, 3.09, 5.14, 8.23, 10.8 (10.8+)

Wind Speed Class : 1 2 3 4 5
--- --- --- --- ---
! WSCAT = 1.54, 3.09, 5.14, 8.23, 10.80 !

Default wind speed profile power-law
exponents for stabilities 1-6
(PLX0(6)) Default : ISC RURAL values
ISC RURAL : .07, .07, .10, .15, .35, .55
ISC URBAN : .15, .15, .20, .25, .30, .30

Stability Class : A B C D E F
--- --- --- --- --- ---
! PLX0 = 0.07, 0.07, 0.10, 0.15, 0.35, 0.55 !

Default potential temperature gradient
for stable classes E, F (degK/m)
(PTG0(2)) Default: 0.020, 0.035
! PTG0 = 0.020, 0.035 !

Default plume path coefficients for
each stability class (used when option
for partial plume height terrain adjustment
is selected -- MCTADJ=3)
(PPC(6)) Stability Class : A B C D E F
Default PPC : .50, .50, .50, .50, .35, .35
--- --- --- --- --- ---
! PPC = 0.50, 0.50, 0.50, 0.50, 0.35, 0.35 !

Slug-to-puff transition criterion factor
equal to sigma-y/length of slug
(SL2PF) Default: 10. ! SL2PF = 10.0 !

Puff-splitting control variables -----

VERTICAL SPLIT

Number of puffs that result every time a puff
is split - nsplit=2 means that 1 puff splits
into 2
(NSPLIT) Default: 3 ! NSPLIT = 3 !

Time(s) of a day when split puffs are eligible to
be split once again; this is typically set once
per day, around sunset before nocturnal shear develops.
24 values: 0 is midnight (00:00) and 23 is 11 PM (23:00)
0=do not re-split 1=eligible for re-split
(IRESPLIT(24)) Default: Hour 17 = 1
! IRESPLIT = 0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1,0,0,0,0 !

Split is allowed only if last hour's mixing
height (m) exceeds a minimum value
(ZISPLIT) Default: 100. ! ZISPLIT = 100.0 !

Split is allowed only if ratio of last hour's
mixing ht to the maximum mixing ht experienced
by the puff is less than a maximum value (this
postpones a split until a nocturnal layer develops)
(ROLDMAX) Default: 0.25 ! ROLDMAX = 0.25 !

HORIZONTAL SPLIT

Number of puffs that result every time a puff
is split - nsplith=5 means that 1 puff splits
into 5
(NSPLITH) Default: 5 ! NSPLITH = 5 !

Minimum sigma-y (Grid Cells Units) of puff
before it may be split
(SYSPLITH) Default: 1.0 ! SYSPLITH = 1.0 !

Minimum puff elongation rate (SYSPLITH/hr) due to
wind shear, before it may be split
(SHSPLITH) Default: 2. ! SHSPLITH = 2.0 !

Minimum concentration (g/m^3) of each
species in puff before it may be split
Enter array of NSPEC values; if a single value is
entered, it will be used for ALL species
(CNSPLITH) Default: 1.0E-07 ! CNSPLITH = 1.0E-07 !

Integration control variables -----

Fractional convergence criterion for numerical SLUG sampling integration
(EPSSLUG) Default: 1.0e-04 ! EPSSLUG = 1.0E-04 !

Fractional convergence criterion for numerical AREA source integration
(EPSAREA) Default: 1.0e-06 ! EPSAREA = 1.0E-06 !

Trajectory step-length (m) used for numerical rise integration
(DSRISE) Default: 1.0 ! DSRISE = 1.0 !

Boundary Condition (BC) Puff control variables -----

Minimum height (m) to which BC puffs are mixed as they are emitted (MBCON=2 ONLY). Actual height is reset to the current mixing height at the release point if greater than this minimum.
(HTMINBC) Default: 500. ! HTMINBC = 500.0 !

Search radius (km) about a receptor for sampling nearest BC puff. BC puffs are typically emitted with a spacing of one grid cell length, so the search radius should be greater than DGRIDKM.
(RSAMPBC) Default: 10. ! RSAMPBC = 10.0 !

Near-Surface depletion adjustment to concentration profile used when sampling BC puffs?
(MDEPBC) Default: 1 ! MDEPBC = 1 !
0 = Concentration is NOT adjusted for depletion
1 = Adjust Concentration for depletion

!END!

INPUT GROUPS: 13a, 13b, 13c, 13d -- Point source parameters

Subgroup (13a)

Number of point sources with parameters provided below (NPT1) No default ! NPT1 = 1 !

Units used for point source emissions below (IPTU) Default: 1 ! IPTU = 3 !
1 = g/s
2 = kg/hr
3 = lb/hr
4 = tons/yr
5 = Odour Unit * m**3/s (vol. flux of odour compound)
6 = Odour Unit * m**3/min
7 = metric tons/yr

Number of source-species
combinations with variable
emissions scaling factors
provided below in (13d) (NSPT1) Default: 0 ! NSPT1 = 0 !

Number of point sources with
variable emission parameters
provided in external file (NPT2) No default ! NPT2 = 0 !

(If NPT2 > 0, these point
source emissions are read from
the file: PTEMARB.DAT)

!END!

Subgroup (13b)

a
POINT SOURCE: CONSTANT DATA

Source X Y Stack Base Stack Exit Exit Bldg. Emission
No. Coordinate Coordinate Height Elevation Diameter Vel. Temp. Dwash Rates
(km) (km) (m) (m) (m) (m/s) (deg. K)

1 ! SRCNAM = Unit 2 !
1 ! X = 408.412, -942.286, 81.08, 34.16, 5.486, 36.271, 425.93, 0,
2850.00, 0, 3298.63, 0, 0, 22.89, 22.04, 0.85, 143.82!
1 ! ZPLTFM = 0 !
1 ! FMFAC = 1 !
1 ! END !

a

Data for each source are treated as a separate input subgroup
and therefore must end with an input group terminator.

SRCNAM is a 12-character name for a source

(No default)

X is an array holding the source data listed by the column headings
(No default)

SIGYZI is an array holding the initial sigma-y and sigma-z (m)
(Default: 0.,0.)

FMFAC is a vertical momentum flux factor (0. or 1.0) used to represent
the effect of rain-caps or other physical configurations that
reduce momentum rise associated with the actual exit velocity.
(Default: 1.0 -- full momentum used)

ZPLTFM is the platform height (m) for sources influenced by an isolated
structure that has a significant open area between the surface
and the bulk of the structure, such as an offshore oil platform.
The Base Elevation is that of the surface (ground or ocean),
and the Stack Height is the release height above the Base (not
above the platform). Building heights entered in Subgroup 13c

must be those of the buildings on the platform, measured from the platform deck. ZPLTFM is used only with MBDW=1 (ISC downwash method) for sources with building downwash.
(Default: 0.0)

b

- 0. = No building downwash modeled
 - 1. = Downwash modeled for buildings resting on the surface
 - 2. = Downwash modeled for buildings raised above the surface (ZPLTFM > 0.)
- NOTE: must be entered as a REAL number (i.e., with decimal point)

c

An emission rate must be entered for every pollutant modeled. Enter emission rate of zero for secondary pollutants that are modeled, but not emitted. Units are specified by IPTU (e.g. 1 for g/s).

Subgroup (13c)

BUILDING DIMENSION DATA FOR SOURCES SUBJECT TO DOWNWASH

Source a

No. Effective building height, width, length and X/Y offset (in meters)
every 10 degrees. LENGTH, XBADJ, and YBADJ are only needed for
MBDW=2 (PRIME downwash option)

a

Building height, width, length, and X/Y offset from the source are treated as a separate input subgroup for each source and therefore must end with an input group terminator. The X/Y offset is the position, relative to the stack, of the center of the upwind face of the projected building, with the x-axis pointing along the flow direction.

Subgroup (13d)

a

POINT SOURCE: VARIABLE EMISSIONS DATA

Use this subgroup to describe temporal variations in the emission rates given in 13b. Factors entered multiply the rates in 13b. Skip sources here that have constant emissions. For more elaborate variation in source parameters, use PTEMARB.DAT and NPT2 > 0.

IVARY determines the type of variation, and is source-specific:
(IVARY) Default: 0

- 0 = Constant
- 1 = Diurnal cycle (24 scaling factors: hours 1-24)
- 2 = Monthly cycle (12 scaling factors: months 1-12)

- 3 = Hour & Season (4 groups of 24 hourly scaling factors, where first group is DEC-JAN-FEB)
 - 4 = Speed & Stab. (6 groups of 6 scaling factors, where first group is Stability Class A, and the speed classes have upper bounds (m/s) defined in Group 12
 - 5 = Temperature (12 scaling factors, where temperature classes have upper bounds (C) of: 0, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 50+)
-

a

Data for each species are treated as a separate input subgroup and therefore must end with an input group terminator.

INPUT GROUPS: 14a, 14b, 14c, 14d -- Area source parameters

Subgroup (14a)

Number of polygon area sources with parameters specified below (NAR1) No default ! NAR1 = 0 !

Units used for area source emissions below (IARU) Default: 1 ! IARU = 1 !

- 1 = g/m**2/s
- 2 = kg/m**2/hr
- 3 = lb/m**2/hr
- 4 = tons/m**2/yr
- 5 = Odour Unit * m/s (vol. flux/m**2 of odour compound)
- 6 = Odour Unit * m/min
- 7 = metric tons/m**2/yr

Number of source-species combinations with variable emissions scaling factors provided below in (14d) (NSAR1) Default: 0 ! NSAR1 = 0 !

Number of buoyant polygon area sources with variable location and emission parameters (NAR2) No default ! NAR2 = 0 !
(If NAR2 > 0, ALL parameter data for these sources are read from the file: BAEMARB.DAT)

!END!

Subgroup (14b)

a

AREA SOURCE: CONSTANT DATA

b

Source No.	Effect Height (m)	Base Elevation (m)	Initial Sigma z (m)	Emission Rates
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a

Data for each source are treated as a separate input subgroup and therefore must end with an input group terminator.

b

An emission rate must be entered for every pollutant modeled. Enter emission rate of zero for secondary pollutants that are modeled, but not emitted. Units are specified by IARU (e.g. 1 for g/m**2/s).

Subgroup (14c)

COORDINATES (km) FOR EACH VERTEX(4) OF EACH POLYGON

Source No.	a Ordered list of X followed by list of Y, grouped by source
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a

Data for each source are treated as a separate input subgroup and therefore must end with an input group terminator.

Subgroup (14d)

a

AREA SOURCE: VARIABLE EMISSIONS DATA

Use this subgroup to describe temporal variations in the emission rates given in 14b. Factors entered multiply the rates in 14b. Skip sources here that have constant emissions. For more elaborate variation in source parameters, use BAEMARB.DAT and NAR2 > 0.

IVARY determines the type of variation, and is source-specific:
(IVARY) Default: 0

0 = Constant

1 = Diurnal cycle (24 scaling factors: hours 1-24)

2 = Monthly cycle (12 scaling factors: months 1-12)

- 3 = Hour & Season (4 groups of 24 hourly scaling factors, where first group is DEC-JAN-FEB)
 - 4 = Speed & Stab. (6 groups of 6 scaling factors, where first group is Stability Class A, and the speed classes have upper bounds (m/s) defined in Group 12
 - 5 = Temperature (12 scaling factors, where temperature classes have upper bounds (C) of: 0, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 50+)
-

a

Data for each species are treated as a separate input subgroup and therefore must end with an input group terminator.

INPUT GROUPS: 15a, 15b, 15c -- Line source parameters

Subgroup (15a)

Number of buoyant line sources with variable location and emission parameters (NLN2) No default ! NLN2 = 0 !

(If NLN2 > 0, ALL parameter data for these sources are read from the file: LNEMARB.DAT)

Number of buoyant line sources (NLINES) No default ! NLINES = 0 !

Units used for line source emissions below (ILNU) Default: 1 ! ILNU = 3 !

- 1 = g/s
- 2 = kg/hr
- 3 = lb/hr
- 4 = tons/yr
- 5 = Odour Unit * m**3/s (vol. flux of odour compound)
- 6 = Odour Unit * m**3/min
- 7 = metric tons/yr

Number of source-species combinations with variable emissions scaling factors provided below in (15c) (NSLN1) Default: 0 ! NSLN1 = 0 !

Maximum number of segments used to model each line (MXNSEG) Default: 7 ! MXNSEG = 7 !

The following variables are required only if NLINES > 0. They are

used in the buoyant line source plume rise calculations.

Number of distances at which Default: 6 ! NLRISE = 6 !
transitional rise is computed

Average building length (XL) No default ! XL = .0 !
(in meters)

Average building height (HBL) No default ! HBL = .0 !
(in meters)

Average building width (WBL) No default ! WBL = .0 !
(in meters)

Average line source width (WML) No default ! WML = .0 !
(in meters)

Average separation between buildings (DXL) No default ! DXL = .0 !
(in meters)

Average buoyancy parameter (FPRIMEL) No default ! FPRIMEL = .0 !
(in m**4/s**3)

!END!

Subgroup (15b)

BUOYANT LINE SOURCE: CONSTANT DATA

Source No.	Beg. X (km)	Beg. Y (km)	End. X (km)	End. Y (km)	Release Coordinate Coordinate Coordinate Coordinate	Base Height (m)	Emission Elevation (m)	Emission Rates
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a

Data for each source are treated as a separate input subgroup
and therefore must end with an input group terminator.

b

An emission rate must be entered for every pollutant modeled.
Enter emission rate of zero for secondary pollutants that are
modeled, but not emitted. Units are specified by ILNTU
(e.g. 1 for g/s).

Subgroup (15c)

BUOYANT LINE SOURCE: VARIABLE EMISSIONS DATA

Use this subgroup to describe temporal variations in the emission rates given in 15b. Factors entered multiply the rates in 15b.
Skip sources here that have constant emissions.

IVARY determines the type of variation, and is source-specific:

(IVARY) Default: 0

- 0 = Constant
- 1 = Diurnal cycle (24 scaling factors: hours 1-24)
- 2 = Monthly cycle (12 scaling factors: months 1-12)
- 3 = Hour & Season (4 groups of 24 hourly scaling factors, where first group is DEC-JAN-FEB)
- 4 = Speed & Stab. (6 groups of 6 scaling factors, where first group is Stability Class A, and the speed classes have upper bounds (m/s) defined in Group 12)
- 5 = Temperature (12 scaling factors, where temperature classes have upper bounds (C) of: 0, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 50+)

a

Data for each species are treated as a separate input subgroup and therefore must end with an input group terminator.

INPUT GROUPS: 16a, 16b, 16c -- Volume source parameters

Subgroup (16a)

Number of volume sources with parameters provided in 16b,c (NVL1) No default ! NVL1 = 0 !

Units used for volume source emissions below in 16b (IVLU) Default: 1 ! IVLU = 3 !

- 1 = g/s
- 2 = kg/hr
- 3 = lb/hr
- 4 = tons/yr
- 5 = Odour Unit * m**3/s (vol. flux of odour compound)
- 6 = Odour Unit * m**3/min
- 7 = metric tons/yr

Number of source-species combinations with variable emissions scaling factors provided below in (16c) (NSVL1) Default: 0 ! NSVL1 = 0 !

Number of volume sources with
variable location and emission
parameters (NVL2) No default ! NVL2 = 0 !

(If NVL2 > 0, ALL parameter data for
these sources are read from the VOLEMAR.B.DAT file(s))

!END!

Subgroup (16b)

a
VOLUME SOURCE: CONSTANT DATA

b

X Coordinate (km)	Y Coordinate (km)	Effect. Height (m)	Base Elevation (m)	Initial Sigma y (m)	Initial Sigma z (m)	Emission Rates
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a

Data for each source are treated as a separate input subgroup
and therefore must end with an input group terminator.

b

An emission rate must be entered for every pollutant modeled.
Enter emission rate of zero for secondary pollutants that are
modeled, but not emitted. Units are specified by IVLU
(e.g. 1 for g/s).

Subgroup (16c)

a
VOLUME SOURCE: VARIABLE EMISSIONS DATA

Use this subgroup to describe temporal variations in the emission
rates given in 16b. Factors entered multiply the rates in 16b.
Skip sources here that have constant emissions. For more elaborate
variation in source parameters, use VOLEMAR.B.DAT and NVL2 > 0.

IVARY determines the type of variation, and is source-specific:
(IVARY) Default: 0

- 0 = Constant
- 1 = Diurnal cycle (24 scaling factors: hours 1-24)
- 2 = Monthly cycle (12 scaling factors: months 1-12)
- 3 = Hour & Season (4 groups of 24 hourly scaling factors,
where first group is DEC-JAN-FEB)
- 4 = Speed & Stab. (6 groups of 6 scaling factors, where
first group is Stability Class A,
and the speed classes have upper
bounds (m/s) defined in Group 12)

5 = Temperature (12 scaling factors, where temperature classes have upper bounds (C) of:
0, 5, 10, 15, 20, 25, 30, 35, 40,
45, 50, 50+)

a

Data for each species are treated as a separate input subgroup and therefore must end with an input group terminator.

INPUT GROUPS: 17a & 17b -- Non-gridded (discrete) receptor information

Subgroup (17a)

Number of non-gridded receptors (NREC) No default ! NREC = 120 !

!END!

Subgroup (17b)

a
NON-GRIDDED (DISCRETE) RECEPTOR DATA

Receptor No.	X Coordinate (km)	Y Coordinate (km)	Ground Height (m)	Above Ground (m)	b
1	IX = 270.32594,	-617.51875,	365,	0.000!	!END!
2	IX = 271.09038,	-617.49392,	365,	0.000!	!END!
3	IX = 271.85481,	-617.46902,	368,	0.000!	!END!
4	IX = 268.76735,	-616.64630,	411,	0.000!	!END!
5	IX = 269.53171,	-616.62161,	462,	0.000!	!END!
6	IX = 270.29606,	-616.59685,	431,	0.000!	!END!
7	IX = 271.06042,	-616.57202,	518,	0.000!	!END!
8	IX = 271.82476,	-616.54712,	487,	0.000!	!END!
9	IX = 272.58911,	-616.52215,	396,	0.000!	!END!
10	IX = 265.68053,	-615.82245,	518,	0.000!	!END!
11	IX = 266.44481,	-615.79804,	523,	0.000!	!END!
12	IX = 267.20909,	-615.77356,	548,	0.000!	!END!
13	IX = 267.97337,	-615.74902,	579,	0.000!	!END!
14	IX = 268.73764,	-615.72440,	547,	0.000!	!END!
15	IX = 269.50191,	-615.69971,	538,	0.000!	!END!
16	IX = 270.26618,	-615.67495,	640,	0.000!	!END!
17	IX = 271.03045,	-615.65013,	608,	0.000!	!END!
18	IX = 260.30172,	-615.06941,	335,	0.000!	!END!
19	IX = 261.06593,	-615.04550,	431,	0.000!	!END!

20 !X = 261.83014, -615.02151,	457,	0.000!	!END!
21 !X = 262.59435, -614.99746,	414,	0.000!	!END!
22 !X = 263.35855, -614.97334,	426,	0.000!	!END!
23 !X = 264.12276, -614.94914,	426,	0.000!	!END!
24 !X = 264.88696, -614.92488,	388,	0.000!	!END!
25 !X = 265.65116, -614.90054,	388,	0.000!	!END!
26 !X = 266.41536, -614.87614,	365,	0.000!	!END!
27 !X = 267.17955, -614.85167,	386,	0.000!	!END!
28 !X = 267.94374, -614.82712,	396,	0.000!	!END!
29 !X = 268.70793, -614.80251,	426,	0.000!	!END!
30 !X = 269.47212, -614.77782,	446,	0.000!	!END!
31 !X = 270.23631, -614.75307,	441,	0.000!	!END!
32 !X = 271.00049, -614.72824,	457,	0.000!	!END!
33 !X = 271.76467, -614.70335,	465,	0.000!	!END!
34 !X = 272.52885, -614.67838,	442,	0.000!	!END!
35 !X = 273.29303, -614.65335,	426,	0.000!	!END!
36 !X = 260.27294, -614.14750,	304,	0.000!	!END!
37 !X = 261.03706, -614.12359,	304,	0.000!	!END!
38 !X = 261.80119, -614.09960,	319,	0.000!	!END!
39 !X = 262.56531, -614.07555,	334,	0.000!	!END!
40 !X = 263.32944, -614.05143,	370,	0.000!	!END!
41 !X = 264.09356, -614.02724,	405,	0.000!	!END!
42 !X = 264.85767, -614.00298,	409,	0.000!	!END!
43 !X = 265.62179, -613.97865,	450,	0.000!	!END!
44 !X = 266.38590, -613.95425,	518,	0.000!	!END!
45 !X = 267.15001, -613.92978,	609,	0.000!	!END!
46 !X = 267.91412, -613.90524,	534,	0.000!	!END!
47 !X = 268.67823, -613.88062,	517,	0.000!	!END!
48 !X = 269.44233, -613.85594,	575,	0.000!	!END!
49 !X = 270.20643, -613.83119,	600,	0.000!	!END!
50 !X = 270.97053, -613.80637,	609,	0.000!	!END!
51 !X = 271.73463, -613.78148,	609,	0.000!	!END!
52 !X = 272.49872, -613.75651,	561,	0.000!	!END!
53 !X = 261.00820, -613.20168,	335,	0.000!	!END!
54 !X = 261.77224, -613.17771,	432,	0.000!	!END!
55 !X = 262.53628, -613.15366,	487,	0.000!	!END!
56 !X = 263.30032, -613.12954,	499,	0.000!	!END!
57 !X = 264.06435, -613.10535,	514,	0.000!	!END!
58 !X = 264.82839, -613.08109,	442,	0.000!	!END!
59 !X = 265.59242, -613.05676,	439,	0.000!	!END!
60 !X = 266.35645, -613.03237,	395,	0.000!	!END!
61 !X = 267.12047, -613.00790,	400,	0.000!	!END!
62 !X = 267.88449, -612.98336,	426,	0.000!	!END!
63 !X = 268.64852, -612.95875,	487,	0.000!	!END!
64 !X = 269.41254, -612.93407,	548,	0.000!	!END!
65 !X = 270.17655, -612.90932,	548,	0.000!	!END!
66 !X = 270.94057, -612.88450,	548,	0.000!	!END!
67 !X = 271.70458, -612.85962,	535,	0.000!	!END!
68 !X = 261.74329, -612.25582,	304,	0.000!	!END!
69 !X = 262.50725, -612.23177,	334,	0.000!	!END!
70 !X = 263.27120, -612.20765,	396,	0.000!	!END!
71 !X = 264.03515, -612.18347,	457,	0.000!	!END!
72 !X = 264.79910, -612.15921,	457,	0.000!	!END!
73 !X = 265.56305, -612.13489,	426,	0.000!	!END!
74 !X = 266.32699, -612.11049,	411,	0.000!	!END!
75 !X = 267.09093, -612.08603,	406,	0.000!	!END!

76 !X = 267.85487, -612.06149,	396,	0.000! !END!
77 !X = 268.61881, -612.03689,	401,	0.000! !END!
78 !X = 269.38274, -612.01221,	397,	0.000! !END!
79 !X = 261.71434, -611.33393,	322,	0.000! !END!
80 !X = 262.47821, -611.30989,	334,	0.000! !END!
81 !X = 777.7102, -1118.0130,	0,	0.000! !END!
82 !X = 779.9709, -1115.9389,	0,	0.000! !END!
83 !X = 780.6968, -1114.9374,	0,	0.000! !END!
84 !X = 781.4225, -1113.9359,	0,	0.000! !END!
85 !X = 785.6071, -1106.0668,	0,	0.000! !END!
86 !X = 789.2269, -1101.0580,	0,	0.000! !END!
87 !X = 789.7834, -1098.1972,	0,	0.000! !END!
88 !X = 791.2295, -1096.1934,	1,	0.000! !END!
89 !X = 791.1458, -1095.2640,	1,	0.000! !END!
90 !X = 791.7848, -1093.3328,	1,	0.000! !END!
91 !X = 791.7011, -1092.4035,	1,	0.000! !END!
92 !X = 792.3396, -1090.4724,	1,	0.000! !END!
93 !X = 792.2559, -1089.5431,	1,	0.000! !END!
94 !X = 792.1721, -1088.6139,	1,	0.000! !END!
95 !X = 792.0883, -1087.6848,	1,	0.000! !END!
96 !X = 792.0046, -1086.7556,	0,	0.000! !END!
97 !X = 791.9208, -1085.8265,	0,	0.000! !END!
98 !X = 791.7533, -1083.9682,	0,	0.000! !END!
99 !X = 792.5586, -1083.8956,	1,	0.000! !END!
100!X = 792.4747, -1082.9665,	1,	0.000! !END!
101!X = 791.5858, -1082.1101,	0,	0.000! !END!
102!X = 792.3909, -1082.0375,	1,	0.000! !END!
103!X = 791.5020, -1081.1811,	0,	0.000! !END!
104!X = 792.3071, -1081.1085,	1,	0.000! !END!
105!X = 791.4182, -1080.2521,	1,	0.000! !END!
106!X = 791.3345, -1079.3231,	1,	0.000! !END!
107!X = 790.4459, -1078.4666,	0,	0.000! !END!
108!X = 791.2507, -1078.3941,	1,	0.000! !END!
109!X = 790.3623, -1077.5376,	0,	0.000! !END!
110!X = 791.1670, -1077.4651,	1,	0.000! !END!
111!X = 790.2786, -1076.6087,	0,	0.000! !END!
112!X = 790.1949, -1075.6798,	0,	0.000! !END!
113!X = 790.1113, -1074.7509,	1,	0.000! !END!
114!X = 789.2232, -1073.8944,	0,	0.000! !END!
115!X = 789.1397, -1072.9655,	0,	0.000! !END!
116!X = 788.2519, -1072.1090,	0,	0.000! !END!
117!X = 788.1684, -1071.1802,	1,	0.000! !END!
118!X = 787.2808, -1070.3236,	0,	0.000! !END!
119!X = 786.3934, -1069.4669,	0,	0.000! !END!
120!X = 785.5062, -1068.6102,	0,	0.000! !END!

a

Data for each receptor are treated as a separate input subgroup and therefore must end with an input group terminator.

b

Receptor height above ground is optional. If no value is entered, the receptor is placed on the ground.

